IN THE SPECIFICATION

Replace present paragraph [0050] with the following new paragraph [0050]:

[0050] Even though the discussion above of the general principles underlying the invention uses an embodiment incorporating just a rotating cascade to illustrate the invention, those skilled in the art will readily appreciate that the invention can be applied in a variety of ways to myriad different apparatus. For example, the stator used to vary cyclically the angle at which flow in directed to the rotor can be replaced by any device that provides a cyclic variation in a flow parameter that will cause each rotor lifting element to cycle through a flow regime in which the flow begins to separate from the lifting element, as shown in FIGURE 1, and then reattaches thereto. With that it mind, it will be appreciated that the stator discussed above can be replaced with a counter-rotating rotor with blades corresponding to the stator blades 26 discussed above. FIGURE 8 illustrates an alternate embodiment 20' of the fan stage 20 shown in FIGURE 2, ~~invention~~ in which counter-rotating rotor blades 26' replace ~~28', corresponding to~~ the stator blades 26 in FIGURES 2 and 3. ~~, are attached to a disk 34'~~. ~~As noted, the disk 34' is mounted for counter-rotation (that is, in the opposite direction) relative to the disk 34, thus providing a counter-rotating second axial flow impeller upstream of the first impeller provided by the blades 28. In this embodiment, the hub 32' is shorter axially as compared to the hub 32.~~ The operational principles discussed above using a stator to illustrate the invention apply equally to an embodiment like that shown in FIGURE 8 using [[a]] counter-rotating impeller blades 26' in place of the stator blades 26. In addition, an implementation of the invention using a counter-rotating impeller can also be retrofit to an existing apparatus.

Replace the paragraphs added to the specification in the Amendment of March 30, 2006, for placement after amended paragraph 0051 with the following new paragraphs [0051.1] and [0051.2]:

[0051.1] In addition, the airfoils comprising the blades of the stator (or counter-rotating impeller) can be varied by changing geometric properties other than turning angle. For example, the blades' airfoil configuration (such as camber, chord length, etc.), the spacing between adjacent blades, and other properties can be controlled in the manner discussed above to periodically effect the increased lift associated with delayed stall. FIGURE 10A shows an embodiment of the invention in which the chord length of the stator blades is varied cyclically. In FIGURE 10A the stator blades 26a are arranged as described in connection with FIGURE 3, in multiple groups M, each group having K blades. The notation used in FIGURE 10A to identify the stator blades is "$26a_{M,K}$." Groups M = 1 and M = 2 are depicted in FIGURE 10A, but as in FIGURE 3, there can be any number of such groups. Likewise, $K_n = 7$ in FIGURE 10A, but those skilled in the art will appreciate that the number of stator blade groups M, the number K of individual stator blades in each group, and the number of rotor blades, are all chosen to obtain the desired performance under specified operating conditions. Each stator blade 26a has an airfoil cross-section, and the camber line of all of the blades forms the same turning angle θ relative to the fan axis and therefore to the velocity V_∞ of the air entering the fan stage. In accordance with this embodiment of the invention, the chord length of the blades within each group changes in accordance with the principles discussed in connection with the embodiment shown in FIGURE 3. ~~gradually increases from a nominal chord c (depicted here as the chords of blades~~ ~~$26a_{1,2}$ and $26a_{2,2}$). As an~~

~~example of a typical variation, the chord lengths of the blades in each group M of an apparatus in accordance with this embodiment might be 0.9c, 1.0c, 1.1c, 1.2c, 1.1c, 1.0c, and 0.9c.~~

[0051.2] FIGURE 10B shows an embodiment in which the spacing between the blades is varied cyclically in accordance with the principles of the invention. The notation used in FIGURE 10B to identify the stator blades is "$26b_{M,K}$." Groups M = 1 and M = 2 are depicted in FIGURE 10B, but as in FIGURES 3 and 10A, there can be any number of such groups. Likewise, $K_n = 7$ in FIGURE 10B, but those skilled in the art will appreciate that the number of stator blade groups M, the number K of individual stator blades in each group, and the number of rotor blades, are all chosen to obtain the desired performance under specified operating conditions. Each stator blade 26b has an airfoil cross-section, and the camber line of all of the blades forms the same turning angle θ relative to the fan axis and therefore to the velocity V_∞ of the air entering the fan stage, and the blades all have the same chord length c. In accordance with this embodiment of the invention, the spacing between the blades within each group changes in accordance with the principles discussed in connection with the embodiment shown in FIGURE 3. ~~gradually increases from a nominal spacing (depicted here as the distance 1.0c between blades~~ ~~$26b_{1,2}$ and $26b_{1,3}$ and between blades $26b_{2,2}$ and $26b_{2,3}$).~~ ~~As an example of a typical variation, the spacing between adjacent blades in each group M of an apparatus in accordance with this embodiment might be 0.9c (between blades~~ ~~$26b_{M,2}$ and $26b_{M,3}$) and then 1.0c, 1.1c, 1.2c, 1.1c, 1.0c, and 0.9c between successive pairs of blades in each group.~~

Replace present paragraph [0060] with the following new paragraph [0060]:

[0060] By way of illustration of other possible applications of the invention, the centrifugal pump illustrated in FIGURE 12 is an example of an embodiment in which the cascade of lifting elements is stationary and the device for directing fluid into the cascade rotates. A centrifugal pump 150 comprises a centrifugal impeller <u>153</u> [[152]] with a plurality of impeller elements $153_{M,K}$, which will be described in more detail shortly. The impeller elements are arranged around a hub 154 capable of rotating on an axis 156 in the direction of the arrow A at an angular velocity Ω. As is conventional, the working fluid enters the impeller at a radially inward location near the hub 154, and the impeller elements direct the flow to the impeller outlet disposed at its periphery. The flow exits the impeller outlet and is directed into a diffuser (not shown). A cascade of lifting elements 158 is disposed around the periphery of the impeller, and each lifting element 158 has an airfoil shape. The cascade of lifting elements has an inlet into which is directed working fluid exiting the impeller outlet. A typical compressor/pump with this basic design is shown in U.S. Patent No. 5,368,440 to Japikse et al.

Replace the present Abstract of the Disclosure with the following new Abstract:

A compressor or pump employs principles of unsteady delayed stall to enhance the head increase produced by the compressor or pump. Plural airfoil-shaped lifting elements are spaced from each other in a cascade and the fluid is directed into the cascade by a device that varies a parameter of the flow relative to each lifting element in repeating cycles to cause the flow relative to each lifting element to begin to separate from the lifting element and then reattach thereto during each cycle. The cascade can comprise an axial flow impeller with plural impeller blades arranged around a hub capable of rotating on an axis. The device for varying the flow parameter can be a stator with a plurality of stator blades upstream of <u>the</u> [[said]] impeller, or a second, counter-rotating axial flow impeller. In either case, the parameter is a flow angle at which the flow is directed to the downstream impeller. The disclosed approach is applicable to any method, and any apparatus that incorporates structure, in which flow is directed to a cascade of lifting elements in a manner whereby the flow relative to each lifting element periodically begins to separate from the lifting element and then reattaches thereto.